

10/16/13 Agenda

- Warm Up
- Review Homework - Worksheet 8
- Section 3.6 day 1 - Theorems about
Perpendicular Lines
- Start Homework
 - Worksheet 9

Warm up: Are these lines parallel, perpendicular or neither?

Line 1: $(-2, 2)$

$-(1, -3)$

$$\frac{-3}{-3} \bigg| \frac{5}{-3} = \frac{-5}{3}$$

\perp

$$\frac{-5}{3}$$

$$\frac{3}{5}$$

Line 2: $(-2, 1)$

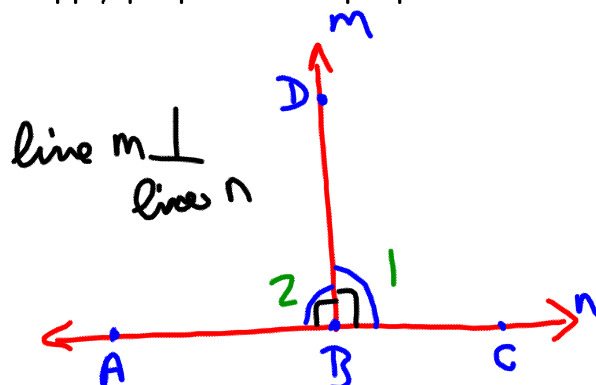
$-(3, 4)$

$$\frac{-5}{-5} \bigg| \frac{-3}{-5} = \frac{3}{5}$$

Section 3.6 - Theorems about Perpendicular Lines Target 3H

Goal:

Apply properties of perpendicular lines.



line $m \perp$
line n

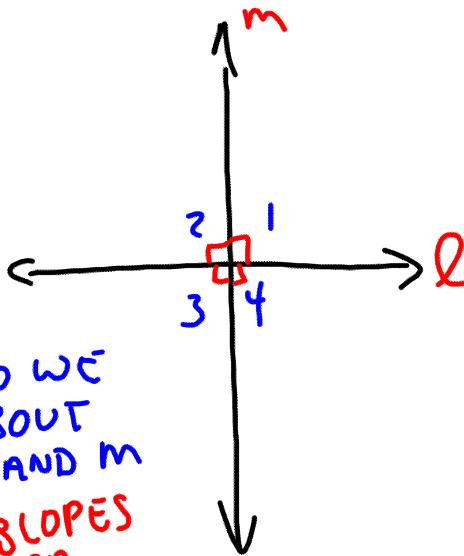
WHAT DO WE
KNOW ABOUT
 $\angle 1$ AND $\angle 2$?

$$\angle 1 \cong \angle 2$$

$$\angle ABC = 180^\circ$$

\overrightarrow{BD} BISECTS $\angle ABC$ $\angle 1$ AND $\angle 2 = 90^\circ$

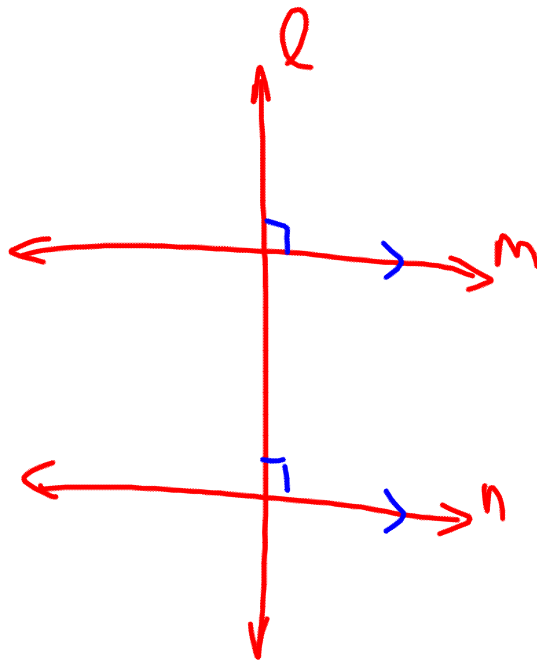
$\angle 1$ AND $\angle 2$ ARE
RIGHT \angle s



WHAT DO WE
KNOW ABOUT
LINE l AND m
THEIR SLOPES
ARE OPP.
RECIP.

IF $l \perp m$, WHAT
DO YOU KNOW
ABOUT $\angle 1$ AND $\angle 2$

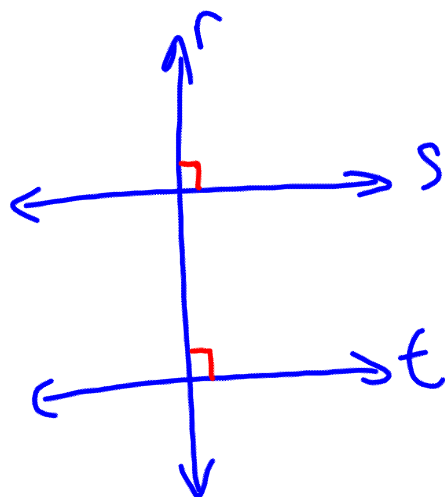
- RIGHT ANGLES
- SUPPLEMENTARY
- $\angle 1 \cong \angle 2$



IF $l \perp m$ AND
 $m \parallel n$

WHAT ELSE
IS TRUE IN THIS
DIAGRAM

$l \perp n$



$$r \perp s \quad r \perp t$$

WHAT CAN YOU TELL
ME ABOUT LINES

s AND t

$$s \parallel t$$

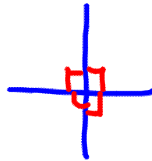
Section 3.6 - Theorems about Perpendicular Lines Target 3H

Theorems:

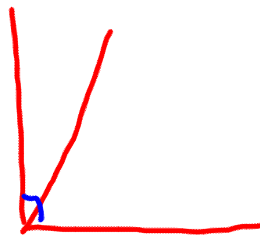
If two lines intersect to form a linear pair of congruent angles, then the lines are perpendicular.



If two lines are perpendicular, then they intersect to form four right angles.



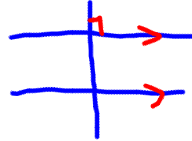
If two sides of two adjacent angles are perpendicular, then the angles are complementary.



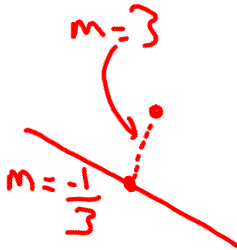
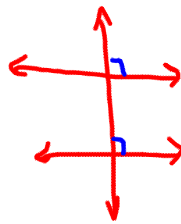
Section 3.6 - Theorems about Perpendicular Lines Target 3H

Theorems:

If a transversal is perpendicular to one of two parallel lines, then it is perpendicular to the other.



In a plane, if two lines are perpendicular to the same line, then they are parallel to each other.



The distance from a point to a line is the length of the perpendicular segment from the point to the line.

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$